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## ***SECTION V - CHANGING THE WAY WE FIGHT***

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The Department is maintaining steady investment and continuing to acquire transformational capabilities. Every ship in the FY 2006 program is a new design. From platforms now beginning delivery, like Virginia Class SSN and LPD-17, to those beginning construction like LCS and those in design like CVN-21, our future Navy will consist of ships with capabilities that provide us with more speed, persistence, precision, and reach. Similarly, we are producing seven new aircraft designs. The aircraft procurement plan emphasizes replacing legacy platforms that are becoming increasingly costly to operate with more efficient and capable integrated systems. This is a sweeping shift to newer, more capable platforms, outfitted with more capable systems.

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### ***SHIP PROGRAMS***

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#### ***Surface Programs***

The Department's FY 2006/FY 2007 budget continues to address acquisition, modernization, and recapitalization of the world's preeminent surface fleet. Continuing to integrate emerging technologies, the Navy will ensure that tomorrow's fleet will remain on the cutting edge. FY 2006 will continue the shift to next generation warships.

CVN-21 will be the future centerpiece of the carrier strike group. It will have a new electrical generation and distribution system, an electromagnetic aircraft launching system, a new/enlarged flight deck, weapons, and material handling improvements, and a smaller crew (by at least 500). The budget continues advance procurement funding for construction of CVN-21, which starts in FY 2008.



DD(X) will play a key role in the *Sea Power 21* strategic concept. Winning the fight requires the ability to assure access and enable maneuver warfare. DD(X) will be a multi-mission surface combatant and will be the precision strike and volume fires provider within the family of surface combatants. It will provide credible forward presence while operating independently or as an integral part of naval, joint, or combined expeditionary forces. Armed



with an array of land attack weapons, DD(X) will provide offensive, distributed, and precision firepower at long ranges in support of forces ashore. Advance procurement funding is provided in FY 2006 to support a lead ship detail design and construction contract award in FY 2007.

Another critical component of *Sea Power 21* is the Littoral Combat Ship (LCS). LCS is envisioned to be a fast, agile, stealthy, relatively small, and affordable surface combatant capable of operating against anti-access, asymmetric threats in the littorals. The primary mission areas of LCS are small boat prosecution, mine counter measures, shallow water anti-submarine warfare, intelligence, surveillance, and reconnaissance. Secondary missions include homeland defense, maritime intercept, and special operations forces support.



It will operate in environments where it is impractical to employ larger multi-mission ships. LCS final system design contracts were competitively awarded to two teams in FY 2004. The detail design and construction of the first LCS flight 0 ship will commence in FY 2005, and the second ship will start in FY 2006. Procurement of three mission packages is also planned in FY 2006.

The Guided Missile Cruiser (CG-47) modernization program was restructured for FY 2006 in accordance with congressional direction. Under the restructured plan, the older Baseline 2 and 3 ships will be modernized first. Funding begins in FY 2006 for long leadtime procurements for the first Baseline 2 modernization availability in FY 2008.

The FY 2006 budget provides full funding for LPD-24, the eighth ship of the LPD-17 class and includes the final increment of funding needed to complete LHD-8. It also includes \$150 million in advance procurement funding for the Landing Helicopter Assault Replacement Ship (LHA(R)). Flight 0 is planned for procurement in FY 2007, and additional funding is planned for RDTEN efforts in support of a LHA(R) Flight 1 procurement in FY 2010.



The Landing Craft Air Cushioned modernization program continues with a service life extension for six craft in FY 2006. The budget request includes RDTEN funding in FY 2006 for transformational Sea Base to Shore, Intratheater, and Intertheater connectors to support Seabasing.

The budget provides for procurement of one Auxiliary Cargo and Ammunition Ship (T-AKE) in the National Defense Sealift Fund (NDSF). This will be the

ninth ship of the class. The NDSF budget also includes funding for the development of the FY 2009 Maritime Preposition Force (Future) ship, and the FY 2009 T-AOE(X) fast combat support ship.

The FY 2006/FY 2007 budget also provides funds for the CVN 70 Refueling Complex Overhaul and one SSBN Engineered Refueling Overhaul.

Chart 14 displays shipbuilding quantities for FY 2005 to FY 2011.

**Chart 14 - Shipbuilding Programs**

	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY06-11
CVN 21	-	-	-	1	-	-	-	1
SSN 774	1	1	1	1	1	1	1	6
DDG 51	3	-	-	-	-	-	-	-
DD(X)	-	-	1	1	1	1	1	5
CG(X)	-	-	-	-	-	-	1	1
LCS	1	1	2	3	5	5	5	21
LPD 17	1	1	1	-	-	-	-	2
LHA(R)	-	-	1	-	-	1	-	2
T-AKE	2	1	1	1	-	-	-	3
T-AOE(X)	-	-	-	-	1	1	2	4
MPF(F)	-	-	-	-	1	1	2	4
<b>New Construction</b>	<b>8</b>	<b>4</b>	<b>7</b>	<b>7</b>	<b>9</b>	<b>10</b>	<b>12</b>	<b>49</b>
Intratheater Connectors	-	-	-	-	1	1	1	3
Sea-Shore Connectors	-	-	-	-	-	1	4	5
SSBN ERO	1	1	1	1	1	1	1	6
SSN ERO	-	-	1	1	-	-	-	2
RCOH	-	1	-	-	-	1	-	2

*Funded in RDTEN*

## Submarine Programs

The Navy will continue to project power covertly with a fleet of modern SSN-688, SSGN, Seawolf, Virginia class, and Trident submarines. Their firepower, stealth, sensors, and communications equipment will enable submarines to act as force multipliers. This budget includes the continuing effort to modernize the submarine fleet with the latest technology ensuring the viability of these critical ships while, at the same time, continuing to replace aging fast attack submarines with the new Virginia class. Construction of Virginia class submarines is performed under a teaming arrangement with General Dynamics and Northrop Grumman Newport News Shipbuilding Company. FY 2006 funds the third of five submarines under a multi-year procurement contract awarded in January 2004. Approximately



\$100 million in economic order quantity advance procurement is also funded in FY 2006.

FY 2006 also includes funding to complete the SSGN program, providing covert conventional strike platforms capable of carrying 150 Tomahawk missiles. The FY 2006 budget request will convert the last of four Trident SSBNs to SSGNs.

## Ship Weapons Programs

The Standard Missile program replaces ineffective, obsolete inventories with the more capable Block IIIB missiles. The Rolling Airframe Missile (RAM) program continues procurement of the improved Guided Missile Launching System and the upgraded Block I missile, providing an enhanced guidance capability along with a helicopter, air, and surface mode. In addition to Standard Missile and RAM, the FY 2006/FY 2007 budget provides funding to continue production of the Evolved Sea Sparrow Missile (ESSM). Additionally, the Tactical Tomahawk missile continues full rate production in FY 2006/FY 2007 via multi-year procurement.



Major Weapons Quantities								
	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Tactical Tomahawk	322	298	379	372	467	386	389	379
Standard Missile	75	75	75	75	75	90	100	105
RAM	90	90	90	90	90	90	90	90
ESSM	82	71	116	108	108	108	21	-

Several land attack research and development efforts critical to future littoral warfare continue in FY 2006/FY 2007, including an extended range munition, the 5"/62 gun, the Advance Gun System (AGS), the Naval Fires Control System (NFCS), and the Distributed Common Ground System (DCGS). The AGS will provide the next generation of surface combatants with a modular large caliber gun system including an automated magazine handling system. The NFCS and DCGS will use existing fire control infrastructure to serve as the nerve center for surface land attack by automating shipboard land attack battle management duties, incorporating improved land attack weapons systems, and utilizing battlefield digitization.

**Also refer to Appendix A for more information:**

Weapons Procurement, Navy  
 Shipbuilding and Conversion, Navy  
 Procurement of Ammunition, Navy and Marine Corps  
 Research, Development, Test and Evaluation, Navy  
 National Defense Sealift Fund

**Table**

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## AVIATION PROGRAMS

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### *Aircraft Programs*

The Department's FY 2006/FY 2007 budget sustains aviation superiority for the Navy and Marine Corps and emphasizes capability based investment strategies, new warfighting concepts, and enabling technologies. The budget continues to maximize the return on procurement dollars, primarily through the use of multi-year procurement contracts for the F/A-18E/F and EA-18G (both airframe and engine), E-2C, and MH-60S. The Department continues to implement the Tactical Air integration plan to reduce the number of new aircraft needed. Robust development funding is also provided for Joint Strike Fighter (JSF), MV-22, EA-18G, Multi-Mission Maritime Aircraft (MMA), Advanced Hawkeye, Joint Aerial Common Sensor (JACS), CH-53X, and Executive Transport Helicopter (VXX).



The F/A-18E/F continues to be the centerpiece of Navy combat aviation. Enhanced warfighting capability investments for the F/A-18E/F introduce a transformational radar, helmet-mounted sight, advanced targeting pod, and fully integrated weapons system. The FY 2006/FY 2007 budget includes funding for the first EA-18Gs, the follow-on to the EA-6B Electronic Attack aircraft.

The Department will continue to procure AH-1Z/UH-1Y attack and utility helicopters. These aircraft will provide numerous capability improvements for the Marine Corps, including increased payload, range, and time on station, improved sensors and lethality, and 85 percent component commonality. Both aircraft will also incorporate common, modernized, and fully integrated cockpits/avionics that will reduce operator workload, and improve situational awareness and safety.

The MH-60R and MH-60S multi-mission helicopters are the cornerstone of the Navy helicopter concept of operations and provide a continuous shield of protection for carrier strike groups and expeditionary strike groups. The MH-60S Armed Helicopter Enhancement, including Hellfire missiles, assures forward deployed force protection and small-boat/terrorist engagement capability.



The Department continues to support the legacy P-3 fleet and develop the MMA to ensure current and future maritime patrol capabilities are met. The Department continues to fund the Special Structural Inspection Kit program, which provides pre-emptive replacement of P-3 wing components and extends aircraft service life a minimum of 5,000 flight hours. Additionally, FY 2006/FY 2007 funding for MMA will help ensure the Initial Operating Capability of FY 2013 will be met.



Joint aircraft programs continue to be an important component of the naval acquisition strategy, with the JSF continuing in the Systems Development and Demonstration phase. The program has been restructured, with a delay in procurement, to ensure time to address key technology challenges. The Department has joined with Army in the Joint Aerial Common Sensor program to provide a common solution to signal intelligence requirements and to replace



the Navy's EP-3s. The joint V-22 program continues with the procurement of both the MV and CV models. The V-22 program is designed to meet the amphibious/vertical assault needs of the Marine Corps and the strike rescue needs of the Navy, and to supplement United States Special Operations Command special mission aircraft. Production is maintained at the minimum sustaining rate of 12 aircraft in FY 2006 pending completion of operational testing.

Continuing the emphasis on transformational systems, the Department has budgeted research and development funding for several aviation programs. The Advanced Hawkeye (E-2 Radar Modernization Program) is funded through the FYDP with the first production in FY 2008. A fully automated digital engine control and improved generators have been incorporated to improve performance and reliability. Additionally, the Department has included funding to support procurement of required capabilities in the fleet, such as Advanced Targeting Forward Looking Infra-Red, Joint Helmet Mounted Cueing Systems, and Tactical Aircraft Directed Infrared Countermeasure systems (TADIRCM), which the Department is developing with the Army beginning in FY 2006. TADIRCM will be used on fixed and rotary wing aircraft to defeat air-to-air, surface-to-air, and Man Portable Air Defense missiles. The development of the VXX, the replacement for the legacy Presidential helicopter fleet, continues in FY 2006/FY 2007.

Since submission of the FY 2005 President's Budget, the strategy for the CH-53 program has evolved from extending the life of the current aircraft to developing an entirely new aircraft, the CH-53X. The RDT&E budget reflects this change with robust development funding across the FYDP.

The FY 2006/FY 2007 budget continues to demonstrate the Department's commitment to developing, acquiring, and fielding transformational Unmanned Aerial Vehicle (UAV) technologies for intelligence, surveillance, reconnaissance, and tactical missions. The budget includes funding for the Broad Area Maritime Surveillance (BAMS) UAV, a vertical take off and landing UAV (VTUAV) for deployment on LCS ships, and a Marine Corps vertical take off and landing UAV (VUAV) to replace the aging Pioneer fleet.



Chart 15 displays the Department's new production and remanufactured aircraft programs for FY 2005 - FY 2011.

**Chart 15 - Aircraft Programs**

	FY05	FY06	FY07	FY08	FY09	FY10	FY11	FY06-11
JSF	-	-	-	10	32	36	33	111
F/A-18E/F	42	38	30	24	20	22	14	148
EA-18G	-	4	12	18	22	20	14	90
MV-22	8	9	14	19	30	35	38	145
AH-1Z/UH-1Y	7	10	18	21	21	22	23	115
MH-60S	15	26	26	26	26	17	15	136
MH-60R	6	12	25	25	30	30	31	153
E-2C	2	2	2	4	4	4	4	20
CH-53X	-	-	-	-	-	2	2	4
MMA	-	-	-	4	-	6	8	18
ACS	-	-	1	1	1	4	5	12
C-40	1	-	1	2	1	1	1	6
C-35	2	-	-	-	-	-	-	-
C-37	2	-	-	-	-	-	1	1
T-45	10	6	12	-	-	-	-	18
JPATS	2	-	24	48	48	48	48	216
KC-130J	4	12	-	-	-	-	-	12
V-XX	3	5	-	3	4	3	4	19
BAMS UAV	-	-	-	-	-	-	4	4
VTUAV	2	3	3	5	7	11	11	40
MC VUAV	-	2	1	2	3	-	-	8
F-5E	9	9	5	-	-	-	-	14
<b>TOTAL</b>	<b>115</b>	<b>138</b>	<b>174</b>	<b>212</b>	<b>249</b>	<b>261</b>	<b>256</b>	<b>1,290</b>

*Funded in RDTEN*

Within our aircraft modifications program, we continue emphasis on safety as well as key operational improvements. The FY 2006/FY 2007 budget includes funding for procurement of the AV-8B Open System Core Avionics Requirements program to update obsolete avionics, the F/A-18 Radar Upgrade, and various structural and safety improvements. Funding is provided for H-53 engine and aircraft sustainment to ensure the H-53 fleet will continue to meet operational requirements until the CH-53X replaces the legacy fleet. Funding is also provided for the EP-3 Update III Common Configuration program, and upgrades to tactical aircraft electronic warfare countermeasures capabilities.

## Aircraft Weapons Programs

The employment of precision-guided munitions during Operation Enduring Freedom and Operation Iraqi Freedom demonstrated all weather, day and night, precision strike delivered well inland on demand. The FY 2006/FY 2007 budget continues to procure the M82 variant of the Joint Direct Attack Munition (JDAM) and includes procurement of unguided bombs to support deliveries of JDAM and Laser Guided Bomb precision guidance kits. The FY 2006/FY 2007 budget also focuses on production of the Joint Standoff Weapon (JSOW) breaching variant.



Major Aviation Weapons Quantities								
	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
JSOW	328	405	420	400	453	496	494	502
SLAM-ER	77	-	-	-	-	-	-	-
AIM-9X	103	135	165	213	195	181	181	181
JDAM	12,422	6,620	3,400	3,400	1,500	1,500	1,500	1,500
AMRAAM	42	46	101	150	140	150	150	150

The AIM-9X (Sidewinder) missile continues to provide short-range air-to-air superiority. The Department continues the procurement of the Advanced Medium Range Air-to-Air Missile (AMRAAM), the next generation, all weather, all environment, radar guided missile for air defense.

**Also refer to Appendix A for more information:**

Aircraft Procurement, Navy  
 Weapons Procurement, Navy  
 Procurement of Ammunition, Navy and Marine Corps  
 Research, Development, Test and Evaluation, Navy

**Table**

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## ***MINE WARFARE***

Following the Department's achievement of an organic mine warfare capability in 2005, the FY 2006/FY 2007 budget includes funding to continue this effort while maintaining a potent and dedicated Mine Countermeasure force. The FY 2006/FY 2007 budget continues the development and integration of the Airborne Laser Mine Detection System (ALMDS) (IOC of 2008) on the MH-60S platform. The budget also continues the development of the Airborne Mine Neutralization System (AMNS), the Rapid Airborne Mine Clearance System (RAMICS), and the Organic Airborne and Surface Influence Sweep (OASIS) system, with IOC planned in FY 2007 for AMNS and OASIS, and FY 2008 for RAMICS. Funding is also included for the development of a single common console for all Airborne Mine Counter Measures systems to establish a fully integrated mid-term organic mine warfare capability on the MH-60S helicopter. These key organic systems will make up the mine warfare mission modules slated for use on LCS.



The FY 2006/FY 2007 budget continues to support the Assault Breaching System, a family of systems in development to counter the mine and obstacle threat in the beach and surf zones. As a part of this family of systems, the Coastal Battlefield Reconnaissance and Analysis (COBRA) system, a UAV and payload ground processing station, will conduct tactical reconnaissance using multi-spectral imaging for detection of mine fields, obstacles, and camouflaged defenses in the surf zone and inland.

**Also refer to Appendix A for more information:**

Weapons Procurement, Navy  
Other Procurement, Navy  
Research, Development, Test and Evaluation, Navy

**Table**

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## C4I PROGRAMS

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The Navy's Command, Control, Communication, Computers, and Intelligence (C4I) programs represent the backbone of the combat capability of naval forces.



The C4I evolutionary plan revolves around four key elements: connectivity; a common tactical picture; a "Sensor-to-Shooter" emphasis; and information/command and control warfare. Central to this is the continued development of FORCEnet in the FY 2006/FY 2007 budget. FORCEnet is the cornerstone architecture that will integrate sensors, networks, decision aids, and weapons into an adaptive human control maritime system in order to achieve dominance across all warfare spectrums.

A central theme continuing to shape the Navy's budget for C4I programs is the concept of Information Technology for the 21st Century (IT-21). IT-21 provides the common backbone for C4I systems to be linked afloat and to the Internet. The networks integrate afloat tactical operations and tactical support applications with enhanced satellite systems and ashore networks. FY 2006 funding continues to accelerate Integrated Shipboard Network Systems procurement and installation to achieve a Full Operational Capability (FOC) for all platforms by FY 2007. IT-21 connectivity is critical because it provides the managed bandwidth for timely transmission of information. The Satellite Communications Systems program continues expansion of available bandwidth to the warfighter.

FY 2006 funding reflects the procurement of the first of nine Advanced Narrowband System/Mobile User Objective Systems (ANS/MUOS), leading to an Initial Operational Capability (IOC) in FY 2010 and FOC in FY 2014. ANS/MUOS will provide the DoD's Ultra High Frequency satellite communication capability for the 21<sup>st</sup> century.

FY 2006 and FY 2007 continue the development of Advanced Extremely High Frequency terminals that support Air Force's Advanced Wideband System satellite program to meet an IOC in FY 2012 and FOC in FY 2015. FY 2006 continues the System Development and Demonstration Phase of the Joint Tactical Radio System Airborne Maritime/Fixed (JTRS AMF) Cluster. JTRS is a family of radios that will replace and integrate various incompatible Service radios. Funding is also budgeted for the migration of the



Multifunctional Information Distribution System-Low Volume Terminal to JTRS compliance.

Funding in FY 2006 also continues the procurement and installation of Global Broadcast System, Super High Frequency, and Extra High Frequency terminals, and provides for upgraded power distribution and enhanced connectivity “drops” accomplished during equipment installations.

The “Sensor-to-Shooter” concept, which is increasingly critical in the Joint arena, focuses on the process of putting a weapon on target using all available sensor data. Funding continues in FY 2006 for the Advanced Tactical Data Links system, ensuring timely transmission of surveillance, targeting, engagement, combat identification, and battle damage assessment information over IT-21 networks.

Information Warfare/Command and Control Warfare is the integrated use of operations security, military deception, psychological operations, electronic warfare, and physical destruction to deny information to, influence, degrade, or destroy an adversary’s C2 capabilities against such actions. FY 2006 /2007 funding provides for the procurement of Common Data Link - Navy systems and continues funding for the Maritime Cryptologic Systems for the 21<sup>st</sup> Century. In the Information Systems Security Program, FY 2006/FY 2007 funds the procurement of Mission Critical Secure Terminal Equipment. FY 2006/FY 2007 funding continues to provide cryptologic equipment and secure communications equipment for Navy ships, shore sites, aircraft, and the Marine Corps.



**Also refer to Appendix A for more information:**

Other Procurement, Navy  
Procurement, Marine Corps

**Table**

A-13  
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## MARINE CORPS GROUND EQUIPMENT

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This category of our budget supports the development and fielding of all equipment used by Marine Corps ground forces. These programs modernize existing capabilities; some will help provide truly transformational methods that the Marine Corps will bring to future conflicts.

Modernization efforts contained within the FY 2006/FY 2007 budget reflect several major replacement and upgrade programs, both new and continuing. Included are the High Mobility Multi-Purpose Wheeled Vehicle (HMMWVA2) and the Light Armored Vehicle Product Improvement Program (LAV PIP). The LAV PIP ensures that LAV combat capabilities will be preserved through FY 2015.



This budget continues the development of the transformational Expeditionary Fighting Vehicle (EFV), the successor to the current amphibious vehicle, the Assault Amphibious Vehicle Model 7A1. The EFV will allow immediate high-speed surface maneuver by Marine infantry units as they are off-loaded by ships located beyond the enemy's visual horizon. Low-Rate Initial Production begins in FY 2007 and will start delivery in FY 2008. Initial Operational Capability will be reached in FY 2010 and Full Operational Capability in 2020.



Critical to Marine Corps transformation efforts, the Lightweight 155mm Howitzer (LW-155) will provide significant improvements over the current M198 system. Its lighter weight and increased lethality will allow for rapid deployment and improved accuracy. The LW-155 is compatible with all U.S. and NATO 155mm rounds, and its smaller footprint reduces the strategic sealift required. The FY 2006/FY 2007 budget continues procurement of the LW-155 on a multiyear procurement contract jointly with the Army.



Another transformational program, the High Mobility Artillery Rocket System (HIMARS), begins Full Rate Production in FY 2006. HIMARS is a C-130



transportable, wheeled, indirect fire weapon system with a range of 30 to 60 km, thus providing a major improvement in area fire support.

Procurement of Assault Breaching Vehicles (ABVs) increases in FY 2006/FY 2007. The ABV provides the ability to breach minefields and clear complex obstacles while keeping pace with the maneuver force and providing exceptional crew protection and survivability. Additionally, the ABV uses a rebuilt and upgraded M1 tank chassis, affording the economic advantages of commonality with the M1A1 tank fleet.



Major Marine Corps Ground Equipment Procurement Quantities								
	FY 2004	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
HMMWV2	1,839	1,830	1,310	1,415	1,235	1,450	1,275	1,235
EFV	-	-	-	15	17	26	42	108
LW155	60	108	77	35	42	-	-	-
HIMARS	1	1	15	19	-	-	-	-
Unit Ops Ctr	14	20	-	-	-	-	-	-
ABV	-	2	20	8	-	-	-	-

**Also refer to Appendix A for more information:**

Procurement, Marine Corps  
Procurement of Ammunition, Navy and Marine Corps  
Research, Development, Test and Evaluation, Navy

**Table**

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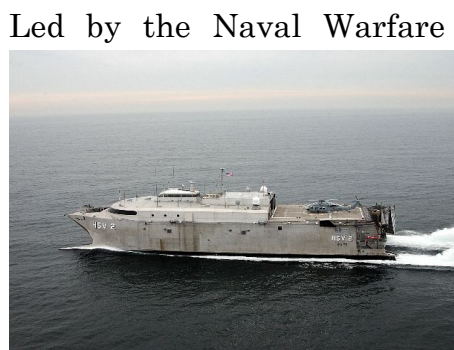
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## RESEARCH AND DEVELOPMENT SUPPORT

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### *Processes for Innovation*

Sea Trial is the Navy process of integrating emergent concepts and technologies, leading to continuous improvements in warfighting effectiveness and a sustained commitment to innovation. It is based on the mutually reinforcing mechanisms of technology push, concept pull, and spiral development. It puts the Fleet at the heart of innovation and provides a mechanism to more readily capture the fruits of their operational excellence and experimentation.



Led by the Naval Warfare Development Command (NWDC), Sea Trial is designed to constantly survey the changing frontier of technological development, identifying those candidates with the greatest potential to provide dramatic increases in warfighting capability. The result is a process that discovers and aligns emergent technologies to deliver next-generation equipment. Following the warfighters' lead, supporting centers for concept development propose innovative operational concepts to address emergent conditions. A basic premise is that new capabilities must be delivered to the Fleet quickly and efficiently. To retain technological superiority, we are shifting to spiral development. Under the spiral development philosophy, systems are designed to receive technological updates at regular intervals without disrupting production or performance. A primary goal of Sea Trial is to more fully integrate the technological and conceptual centers of excellence in the Systems Commands and elsewhere, along with testing and evaluation centers, so that their combined efforts result in significant advancements in deployed combat capability. Working closely with the Fleet, technology development centers, Systems Commands, warfare centers, and academic resources, NWDC will continue to align wargaming, experimentation, and exercise events so that they optimally support the development of transformational concepts and technologies.

The FY 2006/FY 2007 budget continues to finance Marine Corps led experimentation with future tactics, concepts, and innovations involving both Marine and Navy forces. The Marine Corps Warfighting Laboratory is the centerpiece for operational reform in the Marine Corps, investigating new and potentially valuable technologies, and evaluating their impact on how the Marine Corps organizes, equips, and trains to fight in the future. Examples of such efforts include work on command post systems, command and control shared data environments, landing force technologies, defeat of improvised explosive devices, and assault vehicles. In addition, the budget continues to

finance Non-Lethal Weapons research and development - a program for which the Marine Corps serves as the executive agent. In the FY 2006/FY 2007 budget, we seek to leverage developing and emerging technologies that have applications across the spectrum of warfare, giving the Marine Corps the versatility to tackle any mission it may confront in an ever-changing world environment.



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## ***Science and Technology***

The Department continues to refocus how it transitions Science and Technology (S&T) to the acquisition community and the warfighter. This focus will maintain a broad base of S&T fed into the research and development transition process while ensuring adequate coverage for military superiority against technological surprise. The focus is on advanced Future Naval Capabilities to the warfighter and technological innovation to support the National Military Strategy. Technology products resulting from the investment in future naval capabilities are transitioning to acquisition programs throughout the FYDP. Such programs include, but are not limited to: next generation warships (especially those with all-electric systems, advanced propulsion, and reduced manning), advanced combat systems for the Marine Corps, and advanced tactical aircraft and weapons.

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## ***Management and Support***

Research, Development, Test, and Evaluation Management Support funds installations and efforts required for general research and development use. This includes operation of the Navy's test range sites; dedicated research and development aircraft and ship operations; and target and threat simulator development efforts. The funding level reflects required infrastructure support commensurate with overall Navy force structure and facilities management consolidations. Seventy-three percent of this funding, or about \$465 million in FY 2006, supports the Major Range and Test Facilities Base, necessary to conduct independent test and evaluation assessments for all Navy ship, submarine, aircraft, weapons, combat systems, and other development, acquisition, and operational system improvements.

The remaining categories of research are platform-related and have been discussed as applicable in the previous sections. Table 19 provides Research, Development, Test and Evaluation, Navy summary data at the budget activity level and highlights major systems efforts.

**Table 19****Department of the Navy****Research, Development, Test and Evaluation***(In Millions of Dollars)*

	FY 2004		FY 2005		FY 2006		FY 2007	
	\$	% of S&T	\$	% of S&T	\$	% of S&T	\$	% of S&T
<b>Significant RDT&amp;E,N Activities</b>								
Science and Technology	2,182	100%	2,289	100%	1,776	100%	1,817	100%
<i>Basic Research</i>	468	21%	491	21%	448	25%	456	25%
<i>Applied Research</i>	678	31%	822	36%	598	34%	652	36%
<i>Advanced Technology Development</i>	1,036	47%	975	43%	730	41%	709	39%
Advanced Component Development and Prototypes	2,753		3,097		3,276		3,022	
System Development and Demonstration	6,132		7,647		8,878		8,288	
RDT&E Management Support	961		689		757		765	
Operational Systems Development	2,746		3,186		3,351		3,527	
<b>Total RDT&amp;E,N</b>	<b>\$14,773</b>		<b>\$16,907</b>		<b>\$18,038</b>		<b>\$17,419</b>	
<b>NDSF R&amp;D</b>	15		52		103		94	
<b>Total R&amp;D</b>	<b>\$14,788</b>		<b>\$16,960</b>		<b>\$18,141</b>		<b>\$17,513</b>	
<b>Major Systems Efforts:</b>								
Joint Strike Fighter	2,082		2,145		2,393		2,287	
DD(X)	1,015		1,164		1,085		844	
C4I	746		871		1,067		1,283	
MMA	67		490		964		1,138	
VXX	190		551		936		561	
Advanced Hawkeye	328		591		630		558	
Littoral Combat Ship (LCS)	158		453		576		299	
EA-18G	204		354		409		372	
CVN-21	309		351		308		351	
CH-53X	5		102		272		300	
Expeditionary Fighting Vehicle (EFV)	232		243		254		187	
V-22	357		264		206		266	
Virginia Class SSN	141		171		156		139	
Joint Aerial Common Sensor (JACS)	4		25		134		124	
Unmanned Aerial Vehicles (UAV)	183		169		103		105	
F/A-18	164		128		89		21	
MPF(F)	4		28		66		66	
Deployable Joint Command and Control	63		42		41		8	
LHA(R)	54		44		22		46	

Note: Totals may not add due to rounding.

**Also refer to Appendix A for more information:**

Research, Development, Test and Evaluation, Navy

National Defense Sealift Fund

**Table**

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